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REFLECTANCE ANISOTROPY MEASUREMENTS USING A PUSHBROOM SPECTROMETER MOUNTED ON UAV AND A LABORATORY GONIOMETER – PRELIMINARY RESULTS

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Abstract. During 2014–2015 we have developed a new method to measure reflectance factor anisotropy using a pushbroom spectrometer mounted on a multicopter UAV. In this paper/presentation we describe the acquisition method and show the preliminary results of the experiment. To validate the measurements the same targets have also been measured with a laboratory goniometer system. The first experiments over sugar beet fields in 2014 show similar trends in both UAV and laboratory anisotropy data, but also some differences caused by differences in sampling and diffuse illumination. In 2015 a more extensive study on wheat, barley and potato fields were performed. The measurements were repeated on three days over the growth of the crops allowing linking the development of the crops to the anisotropy signals. On each day the anisotropy measurement was repeated 4–5 times with different solar zenith angles ranging from 60° to 40° allowing analysis how the solar angle affects the anisotropy. The first results of these experiments will be presented in this conference.

Conference paper (PDF, 867 KB)

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